



A LIGHTING PLAN

Lighting Concepts for Individual Buildings

Numerous buildings and structures in South Bethlehem can benefit from architectural highlighting. The following pages represent only a few of these structures, ones that were chosen because of their potential to represent various lighting techniques. The first five structures were selected to show a wide variety of building types with specific cultural, historical, social, or economic importance, as well as scale and location.

A 100 watt incandescent lamp operated 8 hours per day, 365 days a year at \$0.08 per kilowatt hour costs \$23.36 to operate. Based on an average life of 750 hours, replacement cost of \$0.50 per lamp and including minimal labor charges, the average cost per year to operate and maintain a 100 watt lamp is approximately \$35.00. Use this to keep the costs in the following section in perspective.

Map 5.1 identifies the possible candidates that were considered for architectural highlighting in this study. **It is stressed that this list is not intended to be all inclusive, and owners of structures not included in this list are strongly encouraged to participate in the lighting initiative.**

Listed with each description are two costs, installation and operation. Installation is a very rough idea of the potential cost incurred in installing the proposed design. This cost includes equipment, wiring, controls, and mounting. It assumes that ample power is available and relatively easily accessible. Operational costs are based on an estimated annual usage of operating the lighting system 8 hours per day, 365 days per year at \$0.08 per kilowatt hour. The operational costs include routine maintenance assuming the owner does the labor and the system's life expectancy is about 20 years.







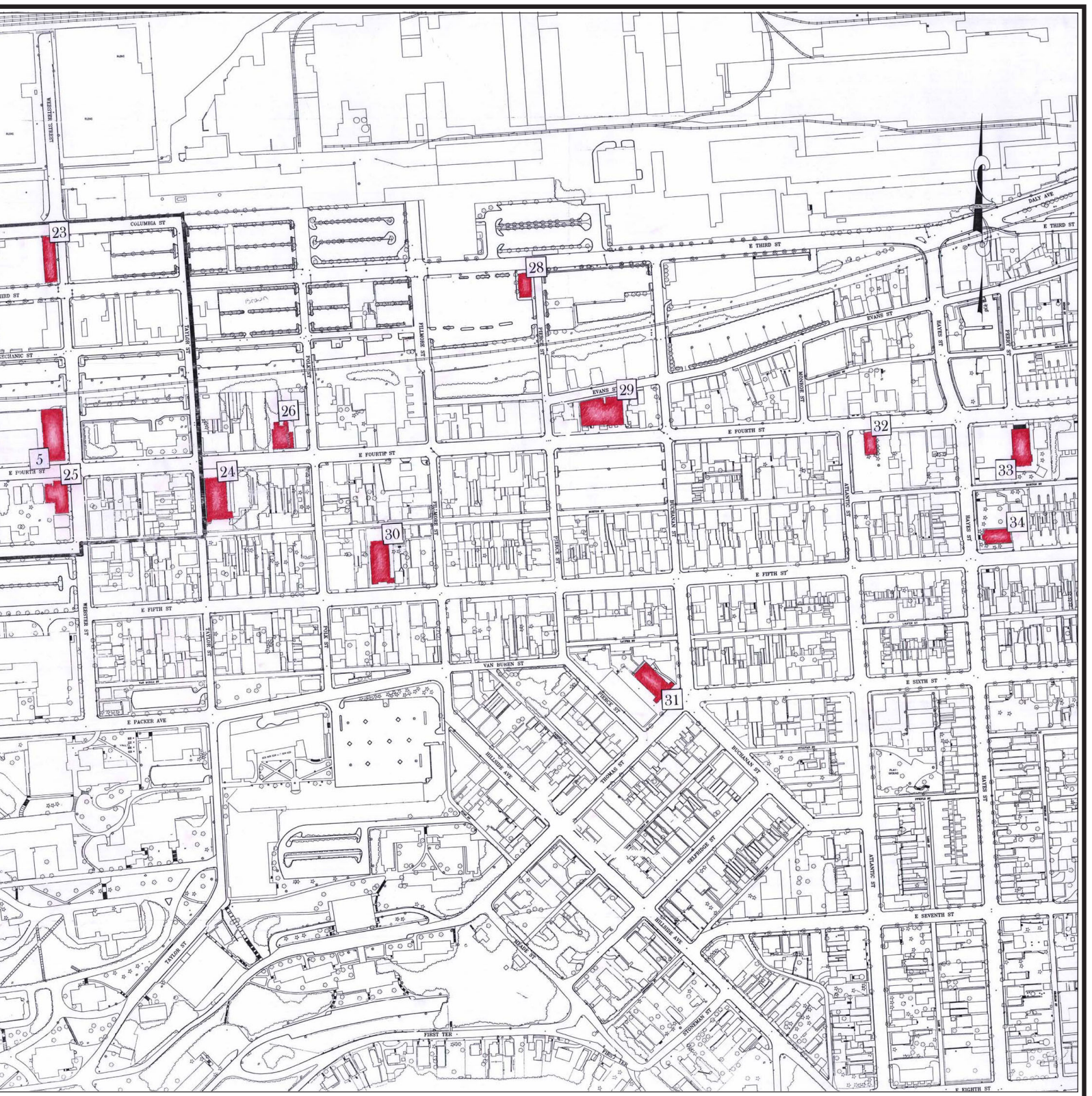
LEGEND

BUILDINGS LISTED IN NO PARTICULAR ORDER

- | | |
|---|--|
| 1. St. John's Zion AME Church | 24. Holy Infancy Church |
| 2. Bethlehem Spanish Pentecostal Church | 25. South Bethlehem Library |
| 3. Ale House | 26. Protection Firehouse (Touchstone) |
| 4. Holy Ghost Church | 27. (not used) |
| 5. Holy Infancy School | 28. Union Bank Building |
| 6. Flat Iron Building | 29. St. John's Windish Lutheran Church |
| 7. Sayre Mansion | 30. St. Joseph's Church |
| 8. Wilbur Mansion | 31. SS Cyril and Methodius Church |
| 9. Lehigh Valley Railroad Building | 32. Our Lady of Pompeii Church |
| 10. Hill to Hill Bridge | 33. St. John's Capistrano Church |
| 11. Union Station | 34. St. Stanislaus Church |
| 12. Tally Ho | *35. Zion Hungarian Lutheran Church |
| 13. Post Office | *36. Holy Bethel Pentecostal Church |
| 14. First Hispanic Baptist Evangelical Church | *37. Concordia Lutheran Church |
| 15. Fritz Memorial United Methodist Church | 38. (not used) |
| 16. Broughal Middle School | *39. Beth Works crane |
| 17. St. Peter's Evangelical Lutheran Church | *40. PB & NE Railroad Building |
| 18. Rooney House | 41. (not used) |
| 19. First United Church of Christ | 42. Holy Ghost Preschool |
| 20. Banana Factory | |
| 21. Fahy Bridge | |
| 22. Design Center | |
| 23. Fleet Bank | |
- *This structure is located to the east of the eastern edge of the map, and is therefore not shown on the map.*







Flat Iron Building

A unique structure that stands proudly at the intersection of Fourth and Broadway, this landmark building could be as identifiable at night as during the day. The upper level of the building should be floodlighted with small, high power spotlights to wash the columns and light the cornice (floodlighting). The lower level of the building can be illuminated with bounce light from the trees, which should be uplighted.

Techniques used - grazing floodlight, landscape lighting.

Installation: \$15,000 – \$25,000

Operation: \$1,200 – \$1,600



Figure 5.1 photo



Figure 5.3 Photo Rendering

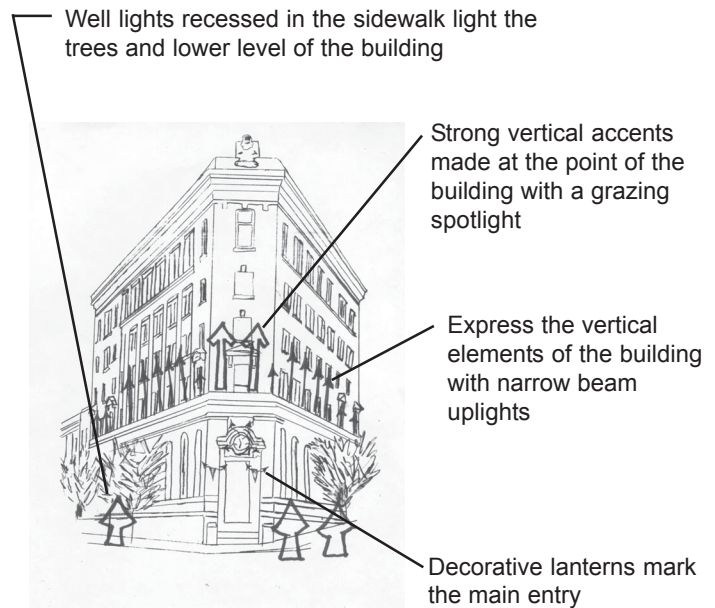


Figure 5.2 Building Sketch

Holy Infancy Church

Visible from all over the South Side of Bethlehem, the Holy Infancy Church steeple is a perfect example of a structure that can be used for orientation. The steeple should be floodlighted with powerful spotlights mounted on nearby utility or street light poles (floodlighting). The stained glass, currently backlighted, could have its source switched to a lamp with a cool color to accent the blue hues in the glass (transmitted luminance). The street level wallpack fixtures at the main entry should be replaced with decorative lanterns to give a solid street level presence to the church and welcome the visitors.

Techniques used - floodlighting, transmitted luminance.

Installation: \$5,000 – \$15,000

Operation: \$600 – \$1,000



Figure 5.4 Photo



Figure 5.6 Photo Rendering

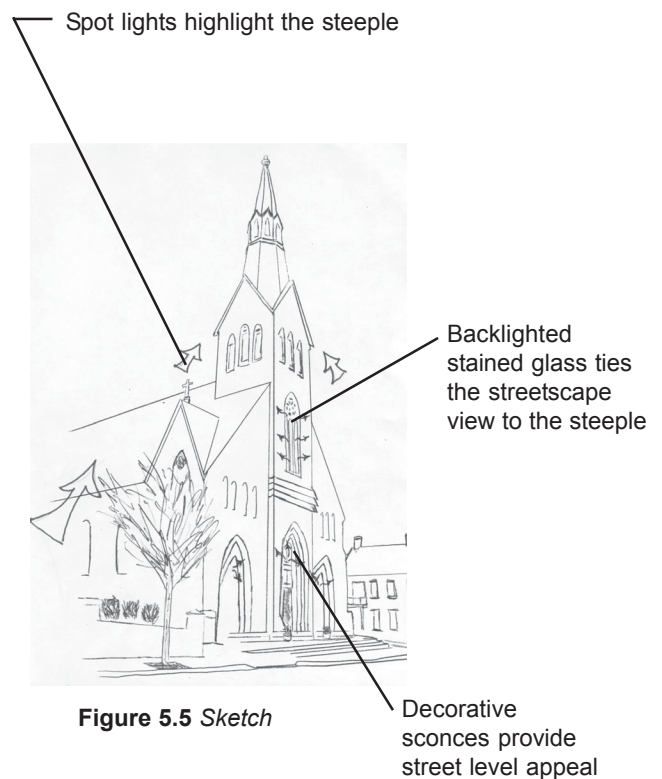


Figure 5.5 Sketch



Holy Ghost Church

The massive twin towers of this church would be best accented by a grazing floodlight (floodlighting). This would provide a dramatic effect at night as the full texture of the stone is revealed. Additional floodlights should be focused on the cross and the center of the church. Further, the top of the towers need to be illuminated with a soft, supplemental light from a spotlight on a nearby utility pole. The stained glass window should be backlit (transmitted luminance) and the entry lights should be replaced or properly maintained (ornamental).

Techniques used - floodlighting, transmitted luminance, ornamental.

Installation: \$18,000 – \$30,000

Operation: \$1,500 – \$1,600



Figure 5.7 Photo



Figure 5.9 Photo Rendering

Secondary spotlights fill in to highlight the top of each tower



Figure 5.8 Building Sketch

Small floodlights integrated at each window add soft accents to details not highlighted by the primary floodlights

Primary floodlights graze each side of the main towers

Design Center

With a prominent location in the center of the South Side of Bethlehem, the highly detailed, low scale, pedestrian-friendly Design Center welcomes travelers as they exit the Fahy Bridge. The ornate cornice work along Third Street should be highlighted by a concealed linear source with a warm color tone (mix of floodlighting and linear). The strong columns, which accent the facade, should be gently washed with lights that are recessed in the ground and concealed by the large planters on the sidewalk. For added flair, color filters could be added to the recessed well lights (floodlighting). The store owners should also be encouraged to keep display lighting on into the evening hours to promote window shopping and add depth to the building (transmitted luminance).

Techniques used - floodlighting, transmitted luminance.

Installation: \$8,000 – \$15,000

Operation: \$450 – \$800



Figure 5.10 Photo

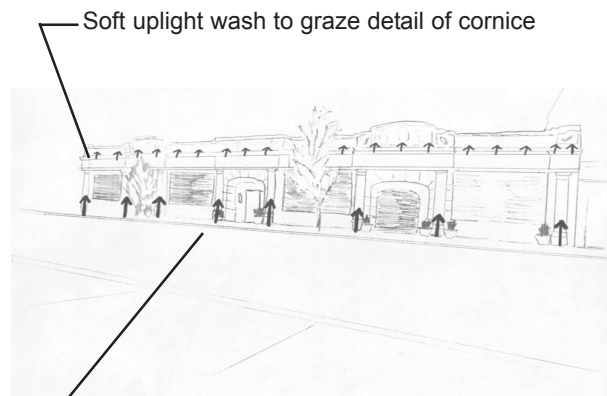


Figure 5.11 Sketch

Well lights recessed in the sidewalk with narrow beam patterns to wash the low scale columns



Figure 5.12 Photo Rendering



Hill to Hill Bridge

The Hill to Hill Bridge acts as a major gateway to the South Side of Bethlehem. As such, the bridge should be fully lighted to accent its history and features. Outlining the main iron structure of the bridge with point sources of light allows the structure to be visible from great distances (loci lighting). This also provides a comfortable and even illumination for pedestrians on that section of the bridge. The new gas light style pedestrian fixture is a good addition, but needs to be carried further to eliminate/replace the cobra head street light fixtures that loom over the bridge (decorative). Lighting the underarches of the bridge would further enhance the nighttime appearance of the bridge (floodlighting).

Techniques used - loci, decorative, floodlighting.

Installation: \$20,000 – \$120,000

Operation: \$2,000 – \$8,000



Figure 5.13 Photo

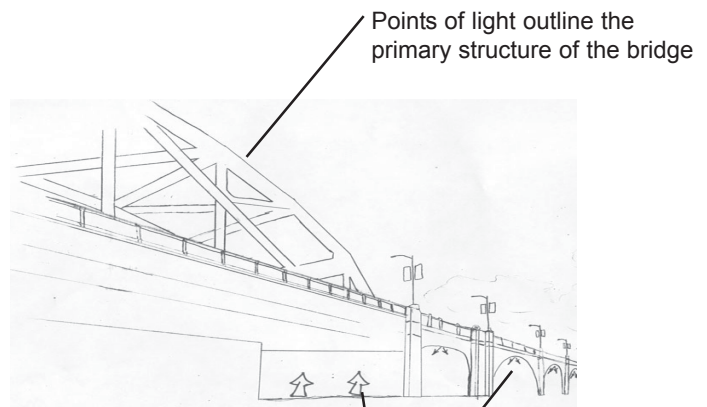


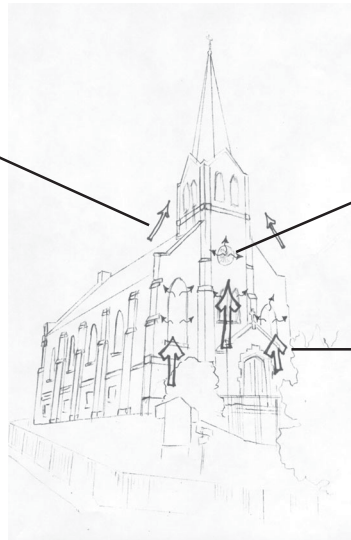
Figure 5.14 Sketch



Figure 5.15 Photo Rendering

Zion Hungarian

Spotlights focused on the steeple



Backlighting stained glass adds color to the facade

General wash from floodlights mounted at ground level or entry roof

Figure 5.16 Sketch



Figure 5.17 Photo

This landmark church stands alone beside St. Michael's Cemetery as an entry to the South Side on Fourth Street. A bold statement could be made by floodlighting the steeple and washing the the front facade of the church (floodlighting). The floodlighting of the front facade should be secondary to the steeple to help draw the viewers' eyes upward. Softly floodlighting the side of the church would help ground the steeple and draw attention to the unique visibility of the entire church. Backlighting the small, round stained glass window (transmitted luminance) and installing decorative lanterns on each side of the front entry doors (decorative) would add needed sparkle to the night appearance.

Techniques used - transmitted luminance, floodlighting, decorative.

Installation: \$8,000 – \$16,000

Operation: \$400 – \$600

Lehigh Valley Railroad Building

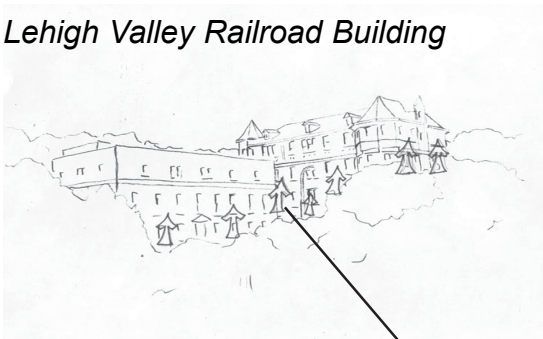


Figure 5.18 Sketch

General wash from floodlights placed relatively close to the building



Figure 5.19 Photo

Upon entering the South Side on the Hill to Hill Bridge, the Lehigh Valley Railroad Building is one of the first major structures to become visible. The facade should be loosely grazed with a floodlight (floodlighting). The intent is to graze the structure enough to show off the ornate cornice and brick reliefs at the windows without modeling the texture of the brick too heavily. Keeping the lights close to the building will also help prevent glare from entering the windows. The lighting of this building must be clear, but not overpowering, so that it leads visitors into town, then quickly becomes secondary to more prominent structures further in town.

Techniques used - grazing floodlight.

Installation: \$16,000 – \$24,000

Operation: \$1,500 – \$2,000



Beth Works Crane



Figure 5.20 Photo

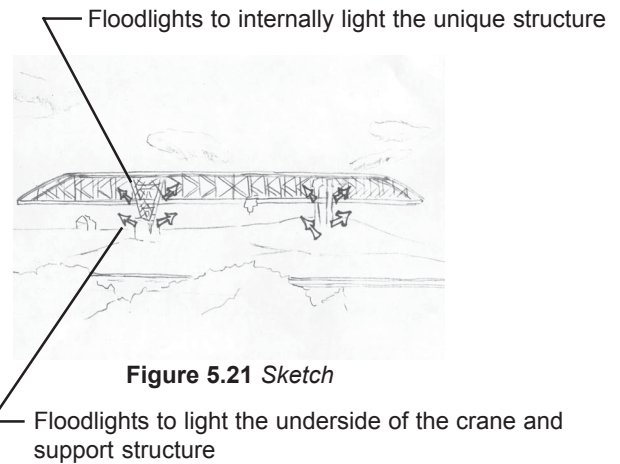


Figure 5.21 Sketch

The Beth Works crane is one of many Beth Works structures deserving of preservation and highlighting at night. The simple addition of 8 to 16 floodlights could turn this magnificent structure into a piece of community history day and night (floodlighting). The crane could quickly become a symbol that you are entering or exiting South Bethlehem, as well as a directional landmark. Other Beth Works structures that could be highlighted with great success include: the Foundry, Blast Furnace, Smoke Stacks, GSO Office Building, and Bank Building. A separate study is recommended to mesh these structures into the masterplan.

Techniques used - floodlighting.

Installation: \$6,000 – \$15,000

Operation: \$550 – \$800

St. Joseph's Church



Figure 5.22 Sketch



Figure 5.23 Photo

Selective floodlighting many of the fine details of this church would give it a strong nighttime presence (selective floodlighting). Small floodlights integrated at ground level and various window and vent elevations can highlight the beautiful details of the structure while leading the eye upward to the twin steeples. The twin steeples should be floodlighted; this may need to be done from nearby utility poles or with permission from adjacent structures (floodlighting). The intensity of the steeple should be greater than the church's own facade but not so bright that it dominates the surroundings.

Techniques used - floodlighting, selective floodlighting.

Installation: \$8,000 – \$20,000

Operation: \$600 – \$900

Fleet Bank

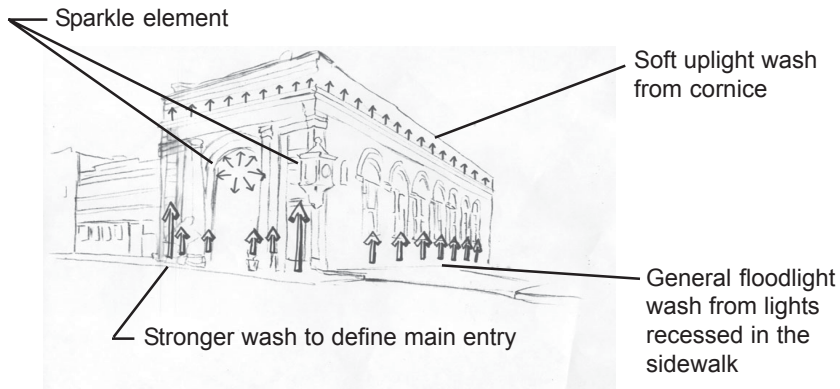


Figure 5.24 Sketch



Figure 5.25 Photo

The low scale, pedestrian friendly, gothic design of the Fleet Bank Building needs lighting that responds to its scale and place in town. A gentle wash of light provided around the perimeter of the structure would help draw attention to the simple, stately design as well as provide added security (floodlighting). The intensity should be slightly higher at the Third Street facade to signify the main entry. All lights should be recessed flush in the ground to avoid being visible during the day. Small lights added behind the large columns at the main entry could add visual interest by placing the columns in silhouette (silhouette). Additional sparkle and street level appeal could be added by refurbishing the clock and/or adding a decorative pendant in the front entry alcove (decorative).

Techniques used - floodlighting, silhouette, decorative.

Installation: \$8,000 – \$20,000

Operation: \$400 – \$600

Wilbur Mansion



Figure 5.26 Photo

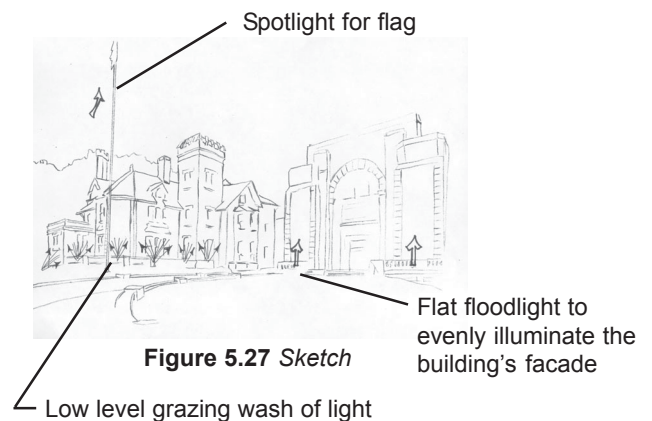


Figure 5.27 Sketch

Just past the Lehigh Valley Railroad Building is the Wilbur Mansion. Low-level, soft grazing of the white structure will easily make this building a standout feature, marking arrival to the South Side (floodlighting). The lighting must be placed close enough to the structure to prevent glare inside the building and to render the offest block structure. Care must be taken not to place the lighting too close to the wall, or the exaggeration of the texture will feel unnatural. The masonic temple requires two simple flatter-angled floodlights. The soft grazing of the Mansion will relate to the other neighboring buildings, and the slightly flatter-angled wash on the Masonic temple will set it apart slightly.

Techniques used - floodlighting.

Installation: \$2,000 – \$16,000

Operation: \$600 – \$800



St. John's Zion AME Church



Figure 5-28

This unique church could be highlighted with a small, low wattage floodlight on either side of the front entrance, just under the reveals. This would help to accentuate the natural stone façade by grazing the surface (grazing floodlight). A small spotlight mounted on the interior would best serve the stained glass window. This fixture would utilize a lamp with a high color temperature to enhance the blue hues of the window (transmitted luminance). Replacing the wall-mounted fixture above the front door with a more decorative fixture would greatly add to the inviting look that is desired (ornamental).

Techniques used - grazing floodlight, transmitted luminance, ornamental.

Installation: \$900 – \$1,100

Operation: \$75 – \$100

Bethlehem Spanish Pentecostal Church



Figure 5-29

The stone cross in the steeple's front façade could be best highlighted by a small spotlight mounted on the roof of the canopy at the front door (selective floodlighting). Replacing the light fixture above the sign with a linear fluorescent fixture will wash the sign in a more even light, and bring more attention to it.

Techniques used - selective floodlighting.

Installation: \$500 – \$800

Operation: \$40 – \$60

Ale House



Figure 5-30

The lighting for this building would be best incorporated into a restoration or renovation of the structure. Lighting could play a big part in emphasizing a new or restored building on this site, as it is a pivotal intersection into South Bethlehem.

Techniques used - Based on the site's shape and location within the city, a future lighting scheme of floodlighting combined with delineation could work well.

Installation: ?

Operation: ?

Holy Infancy School



Figure 5-31

Two spotlights mounted on either side on the roof from below could highlight the cross, high above the main entrance on the front façade (selective floodlighting). Semidecorative fixtures mounted inside the portico (entry) would provide an inviting feel to the street level entry (silhouette).

Techniques used - selective floodlighting, silhouette.

Installation: \$1,000 – \$3,200

Operation: \$250 – \$350